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180 300 9 240 270 Cys Tyr Leu Thr Gly Leu Thr Asp Lys Met Arg Asn Asp Phe Asn Val Met Lys Asp Leu Ala Val His Thr Arg Leu Thr Pro Glu Gln 330 8 120 150 390 39 420 450 510 480 Asn His Phe Arg Leu Thr Ser Arg Pro Gln Trp Ala Leu Tyr Gln Tyr His Ile Asp Tyr Asn Pro Leu Met Glu Ala Arg Arg Leu Arg Thr Asp Val Ser His Lys Val Leu Arg Ser Glu Thr Val Leu Asp Phe Met Phe Asn Phe Tyr His Gln Thr Glu Glu His Lys Phe Gln Arg Gln Arg Glu Val Gly Arg Leu lle Asp Tyr lle His Lys Asn Asp Asn Val Gln Arg Glu Leu Arg Asp Trp Gly Leu Ser Phe Asp Ser Ala Leu Leu Phe Gln His Glu Asp Leu Ile Gly Lys Cys His Ala Phe Asp Gly Thr Ile Leu Phe Leu Pro Lys Arg Leu Gln Gln Glu Gln Val Ser Lys Glu Leu Ile Gly Leu Val Val Leu Thr Lys Tyr Asn Asn Lys Thr Tyr Arg Val Asp Asp Ile Asp Trp Asp Gln Arg Thr Glu Ala Tyr Leu Arg Val Leu Gln Gln Lys Val Thr Ala Asp Thr Gln Ile Val Val Cys Leu Leu Ser Ser Asn Arg Lys Asp Thr Cys Leu Gln Phe Tyr Asn Ile Ile Phe Arg Arg Leu Leu Lys Ile Met Asn Leu Gln Gln Ile Gly Arg Asn Tyr Tyr Asn Pro Asn Asn Pro Lys Ser Thr Phe Lys Lys Ala Asp Gly Ser Glu Val Ser Phe Leu Glu Tyr Tyr Arg Lys Gln Tyr Asn Gln Glu Ile Thr Asp Leu Lys Gin Pro Val Leu Val Ser Gin Pro Lys Arg Arg Arg Gly Pro Gly Gly Thr Leu Pro Gly Pro Ala Met Leu Ile Pro Glu Leu Ala Ala Asn Ser Leu Ile Gln Asn Leu Phe Lys Val Thr Pro Ala Met Gly Met Gln Met Arg Lys Ala Ile Met Ile Glu Val Asp Asp Lys Tyr Asp Ala lle Lys Lys Tyr Leu Cys Thr Asp Cys Pro Thr Pro Ser Gln Cys Val Val Ala Arg Thr Leu Gly Lys Gln Gln Thr Lys Val Thr Glu Val Phe Ser Lys Thr Arg Asn Gly Glu Asp Val Arg lle Thr lle Thr Leu Thr Asn Glu Leu Pro Pro Thr Ser Pro Asp Trp Ser Lys Glu Thr Arg Gly Ala Pro Leu Ile Ser Val Lys Pro Leu Asp Asn Trp Leu Leu Ile Tyr Thr Arg Arg Asn Tyr Glu Ser Asn Leu Leu Ser Phe Ser Gly Arg Ile Leu Gln Thr Glu Lys Ile His Gln Gly Gly Lys Thr Phe Asp Tyr Asn Pro Gln Phe Ala Met lle Phe Gly Val Asn Thr Arg Gln Asn Leu Asp His Val Lys Glu Ser Lys Thr Gly Ser Ser Gly Ile Ile Val Arg Leu Ser Thr Asp Pro Ile Asp Ile Pro Ser His Arg Leu Val Ile Trp Pro Gly Phe Thr Thr Ser Ile Leu Gln Tyr Glu Asn Ser Ile Met Leu Cys

## Figure 1 Continued

775



540

900 570 630 099 9 750 720 Arg Trp Phe Ser Arg Cys Ile Phe Gln Asp Arg Gly Gln Glu Leu Val Asp Gly Leu Lys Val Cys Leu Gln Ala Ala Leu Arg Ala Trp Val Met Ala Ile Ala Thr Lys Ile Ala Leu Gln Met Asn Cys Lys Met Gly Gly Glu Leu Trp Arg Val Asp Ile Pro Leu Lys Leu Val Asn Ser Cys Asn Glu Tyr Met Pro Ser Arg Ile Ile Val Tyr Arg Asp Gly Val Gly Asp Gly Gln Leu Lys Thr Leu Val Asn Tyr Glu Arg Phe Phe Ala Gln Ser Gly Gly Arg Leu Gln Asn Pro Leu Pro Gly Thr Val Ile Asp Val Glu Val Thr Arg Pro Glu Trp Tyr Asp Val Pro Gln Phe Leu Asp Cys Leu Lys Ser Ile Gly Arg Gly Tyr Asn Pro Arg Leu Thr Val Ile Val Val Lys Lys Arg Val Asn Thr Met Ile Val Gly Ile Asp Cys Tyr His Asp Met Thr Ala Gly Arg Arg Ser Ile Ala Gly Phe Val Ala Ser Ile Asn Glu Gly Met Thr Phe Phe Ile Val Ser Gln Ala Val Arg Ser Gly Ser Val Ser Pro Thr His Tyr Asn Val Ile Tyr Asp Asn Ser Gly Leu Lys Pro Asp His Ile Gln Arg Leu Thr Tyr Lys Leu Cys His Ile Tyr Tyr Asn Trp Pro Gly Val Ile Arg Val Pro Ala Pro Cys Gln Tyr Ala His Lys Leu Ala Phe Leu Val Gly Gln Ser Ile His Arg Glu Pro Asn Leu Ser Leu Ser Asn Arg Leu Tyr Tyr Leu

## Continued Figure 1

PIWI		
	M F G R L	61
HIWI	MGVNTRQNLDHV	
PIWI	REGGPPERKPWGDQYDYLNTRPVELVSKKGTDGVPVMLQTNFFRLKTKPEWRIVHYHVEFE  K E SK G+ G+ V L TN FRL ++P+W + YH+++	122
HIWI		122
PIWI	PSIENPRVRMGVLSNHANLLGSGYLFDGLQLFTTRKFEQEITVLSGKSKLDIEYKISIKFV	102
HIWI	P +E R+R +L H +L+G + FDG LF ++ +Q++T + K++ + +I+I PLMEARRLRSALLFQHEDLIGKCHAFDGTILFLPKRLQQKVTEVFSKTRNGEDVRITITLT	103
PIWI	GFISCAEPRFLQVLNLILRRSMKGLNLELVGRNLFDPRAKIEIREFKMELWPGYETSIRQH + P LQ N+I RR +K +NL+ +GRN ++P I+I ++ +WPG+ TSI Q+	244
HIWI		
PIWI	EKDILLGTEITHKVMRTETIYDIMRRCSHNPARHQDEVRVNVLDLIVLTDYNNRTYRIN E I+L T+++HKV+R+ET+ D M H H Q++V ++ L+VLT YNN+TYR++	305
HIWI	ENSIMLCTDVSHKVLRSETVLDFMFNFYHQTEEHKFQEQVSKELIGLVVLTKYNNKTYRVD	
PIWI	DVDFGQTPKSTF-SCKGRDISFVEYYLTKYNIRIRDHNQPLLISK-NRDKALKTNASELVV D+D+ Q PKSTF G ++SF+EYY +YN I D QP+L+S+ R + +	
HIWI		
PIWI	LIPELCRVTGLNAEMRSNFQLMRAMSSYTRMNPKQRTDRLRAFNHRLQNTPESVKVLR LIPELC +TGL +MR++F +M+ ++ +TR+ P+QR RL + H+ N LR	
HIWI	<del>-</del>	
PIWI	DWNMELDKNVTEVQGRIIGQQNIVFHNGKVPAGENADWQRHFRDQRMLTTPSDGLDRW DW + D N+ GRI+ + I H G N ADW + R +++ LD W	
HIWI	DWGLSFDSNLLSFSGRILQTEKIHQGGKTFDYNPQFADWSKETRGAPLISVKPLDNW	
PIWI	AVIAPQRNSHELRTLLDSLYRAASGMGLRIRSPQEFIIYDDRTGTYVRAMDDCVRSDPKLI +I +RN +L+ +L++ MG+++R I DDRT Y+R + V +D++++	
HIWI		
PIWI	LCLVPNDNAERYSSIKKRGYVDRAVPTQVVTLKTTKKPYSLMSIATKIAIQLNCKLGYTPW CL+ ++ ++Y +IKK D P+Q V +T K ++M+IATKIA+Q+NCK+G W	
HIWI	VCLLSSNRKDKYDAIKKYLCTDCPTPSQCVVARTLGKQQTVMAIATKIALQMNCKMGGELW	
PIWI	MIELPLSGLMTIGFDIAKSTRDRKRAYGALIASMDLQQNSTYFSTVTECSAFDVLANTLWP +++PL +M +G D +R+ +AS++ + +FS L+ L	
HIWI	•	
PIWI	MIAKALRQYQHEHRKLPSRIVFYRDGVSSGSLKQLFEFEVKDIIEKLKTEYARVQLSPPQL + ALR + + +PSRI+ YRDGV G LK L +EV ++ LK+ P+L	732
HIWI	CLQAALRAWNSCNEYMPSRIIVYRDGVGDGQLKTLVNYEVPQFLDCLKSIGRGYNPRL	
PIWI	AYIVVTRSMNTRFFLNGQNPPPGTIVDDVITLPERYDFYLVSQQVRQGTVSPTSYNV IVV + +NTRFF QNP PGT++D +T PE YDF++VSQ VR G+VSPT YNV	
HIWI	TVIVVKKRVNTRFFAQSGGRLQNPLPGTVIDVEVTRPEWYDFFIVSQAVRSGSVSPTHYNV	
PIWI	LYSSMGLSPEKMQKLTYKMCHLYYNWSGTTRVPAVCQYAKKLATLVGTNLHSIPQNALEK	05.
HIWI	+Y + GL P+ +Q+LTYK+CH+YYNW G RVPA CQYA KLA LVG ++H P +L IYDNSGLKPDHIQRLTYKLCHIYYNWPGVIRVPAPCQYAHKLAFLVGQSIHREPNLSLSN	854
PIWI	KFYYL + YYL 859	
UTWT	Figure 1	

Continued



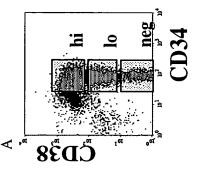
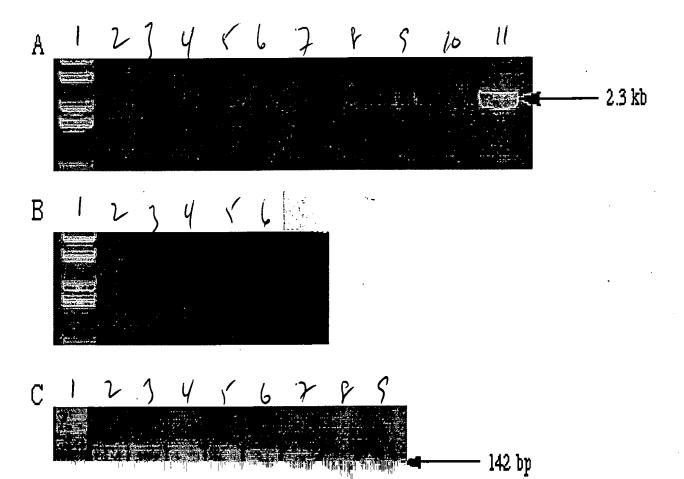


Figure 2



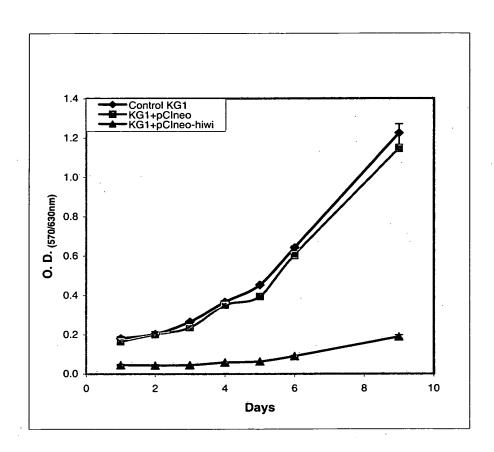


Figure 4

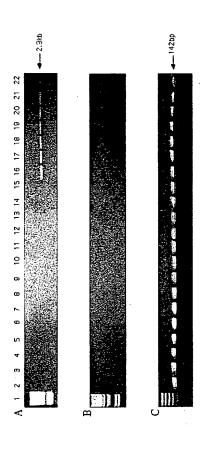
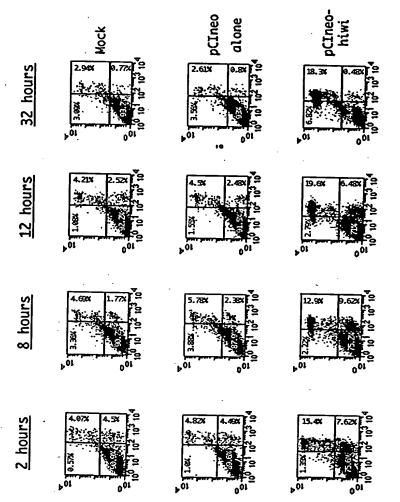


Figure 5



Propidium Lodide

Annexin

igure o

В

1 Kb Ladder
Heart
Brain
Kidney
Liver
Lung
Skeletal muscle
Thymus

Prostate Testis Leukocyte

Ovary Small intestine

Placenta Pancreas

Water control

1 Kb Ladder

1 Kb Ladder

Heart

 $\triangleright$ 

Brain

Kidney

Liver

Lung

Skeletal muscle

Spleen

Thymus

Water control

1 Kb Ladder

Figure 7





Figure 8

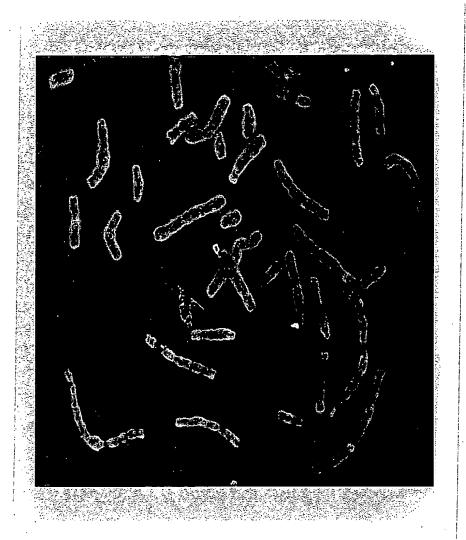


Figure 0

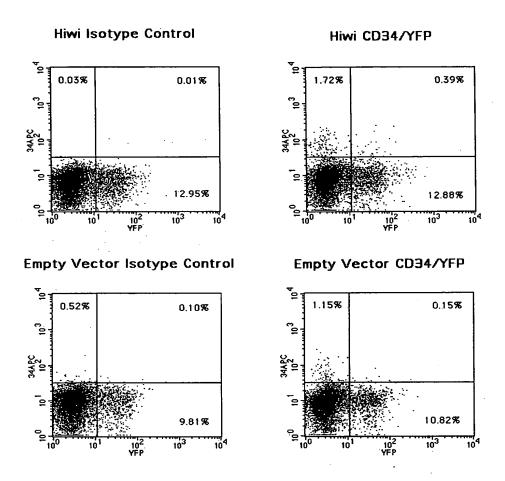


Figure 10